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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/783,999      | 02/20/2004  | Charles M. Potter    | 1028-025US01        | 4355             |

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EXAMINER

LIN, SHEW FEN

ART UNIT PAPER NUMBER

2166

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/783,999             | POTTER ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Shew-Fen Lin           | 2166                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                    |                                                                             |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____                                                |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/28/2005</u>                                                            | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

- a. This action is responsive to communications: application filed on 2/2/2004.
- b. Claims 1-16 are pending in this Office Action and claims 17-20 have been withdrawn. Claims 1 and 12 are independent claims.

### *Priority*

Applicant is advised of possible benefits under 35 U.S.C. 119(a)-(d), wherein an application for patent filed in the United States may be entitled to the benefit of the filing date of a prior application filed in a foreign country.

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Canada on 2/21/2003. It is noted, however, that applicant has not filed a certified copy of the 2,419,502 application as required by 35 U.S.C. 119(b).

Applicant is advised that the design disclosed in the foreign application (CA 2,419,502) is not the same design as the design disclosed in instant application (for example, Figure 10 and associated description in the instant application is not disclosed in CA 2,419,502). Therefore, this application does not satisfy the requirement of 35 U.S.C. 119(a) that only the same invention filed in a foreign country is entitled to benefit of the earlier filing date.

### *Election/Restrictions*

Claims 17-20 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 10/16/06.

***Claim Rejections – 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. They merely present an abstract idea without any practical application that produces a useful, concrete, and tangible result.

As per claim 12, the claimed process, “partitioning a data..., creating member cubes..., creating a control cube...”. Since mere creating without associated with any physical device is not a tangible result, the claim fails to recite a tangible result, as the creating step is not tangible.

Regarding claims 12-16 depend from rejected claim 12, comprise the same deficiencies as those claims directly or indirectly by dependence, and are therefore rejected on the same basis.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 1-6, 9, and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Yeh (US Patent 6,980,980).

**As to claim 1**, Yeh discloses a system for storing data (column 1, lines 7-8), the system comprising: one or more member cubes (detailed cubes, Figure 4, item 26) for storing data partitioned along a dimension (column 2, lines 17-20, lines 59-65); a control cube for accessing the member cubes (summary cube, Figure 4, item 28, column 2, lines 65-67, column 8, lines 23-27).

**As to claim 2**, Yeh discloses wherein the control cube has an entire partitioned dimension relative to the member cubes (column 6, lines 48-51, column 8, lines 21-28).

**As to claim 3**, Yeh discloses the system as claimed in claim 2, wherein the control cube further has: a listing of other dimensions of the member cubes (column 7, lines 50-52); and a listing of measures of the member cubes (Figure 5).

**As to claim 4**, Yeh discloses wherein the data is partitioned along the time dimension (Figures 1 and 5).

**As to claim 5**, Yeh discloses the system as claimed in claim 4, wherein the control cube has: an entire time dimension relative to the member cubes (column 2, lines 52-56); a listing of

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other dimensions of the member cubes (shared dimensions, Figure 4 item 36); and a listing of measures of the member cubes (Figure 5).

**As to claim 6**, Yeh discloses the system as claimed in claim 5, wherein a member cube is added to the system (add new detailed cube, column 2, lines 28-32, column 7, lines 58-63).

**As to claim 9**, Yeh discloses the system as claimed in claim 5, further comprising a plurality of control cubes, each control cube coupled with a group of member cubes from a pool of member cubes to form a separate dimension-based partitioned cube (column 7, lines 12-19).

**As to claim 11**, Yeh discloses the system as claimed in claim 2, wherein a member cube is the control cube of another dimension-based partitioned cube (column 7, lines 12-23).

**As to claim 12**, Yeh discloses a method of transforming a body of data into a dimension-based partitioned cube (abstract), the method comprising the steps of: partitioning the data into one or more dimension-based partitions (column 1, lines 17-20, lines 59-65); creating member cubes corresponding to the one or more dimension-based partitions (detailed cubes, Figure 4, item 26, column 3, lines 39-41); and creating a control cube for representing the data distributed over the member cubes (summary cube, Figure 4, item 28, column 2, lines 65-67, column 8, lines 23-27).

As to claim 13, Yeh discloses wherein the data is partitioned along the time dimension (Figures 1 and 5).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeh as applied to claim 13 above, and further in view of Joy Mundy ("Using Partitions in a Microsoft SQL Server 2000 Data Warehouse", February 2001, <http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnsq12k/html/partitionsindw.asp>, hereinafter referred as Mundy).

As to **claim 7**, Yeh discloses the element of claim 5 as noted above but does not explicitly disclose wherein a member cube is removed from the system.

Mundy discloses dropping old partitions either after merging or just to remove aged partition (pages 7 and 10).

It would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify Yeh's disclosure to drop old partitions as taught by Mundy for the purpose of keeping most recent data in cubes. The skilled artisan would have been motivated to improve the invention of Yeh per the above to remove daily partition after merging into weekly partition (page 12).

As to **claims 14-16**, Yeh discloses partitioning along time dimension as noted above but does not explicitly disclose data is partitioned into equidistant, non-equidistant or sliding window of time intervals.

Mundy discloses time (date) dimension is usually the first partition dimension (pages 7 and 8) and can be choose a different granularity such as day, week, month or year (page 5). It is common to define a partition plan that drills down on one part of the cube. For example, recent data may be partitioned by day or week, older data by month or year (pages 9 and 15). Different time interval partition (equal interval: days, non-equal interval: day-week, sliding window interval: day, week, month, year) is used to build partition in order to minimize the number of active partitions.

It would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify Yeh's disclosure to include equidistant, non-equidistant or sliding window



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of time intervals to partition time dimension as taught by Mundy for the purpose of merging the aged data together. The skilled artisan would have been motivated to improve the invention of Yeh per the above to optimize the number of the partitions and query performance (page 12).

Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeh as applied to claims 5 and 9 above, and further in view of Pasumansky et al. (US Patent 6,477,536, hereinafter referred as Pasumansky).

**As to claim 8**, Yeh discloses the system as claimed in claim 5 but does not explicitly disclose wherein the control cube restricts access to member cubes.

Pasumansky discloses maintaining the security information about a cube in a cube metadata. The security information defines the access rights granted to users of OLAP sever with respect to the cube (column 7, lines 61-64).

It would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify Yeh's disclosure to include security information in the summary cube (associated metadata) as taught by Pasumansky for the purpose of providing data security by exposing only a subset of the cube to a user (column 2, lines 12-14, Pasumansky). The skilled artisan would have been motivated to improve the invention of Yeh per the above such that there is a flexibility in defining security parameter for a cube (column 2, lines 1-9).

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As to claim 10, Yeh discloses the system as claimed in claim 9 but does not explicitly disclose, wherein different control cubes over the same pool of member cubes restrict data access to different portions of data for different users.

Pasumansky discloses maintaining the security information about a cube in a cube metadata (column 7, lines 61-64). The security restrictions applied to virtual cubes (summary cube) as not dependent upon security restrictions applied to the physical cubes (column 11, lines 52-58). Different control cube (summary cube) can have different security information in its metadata and providing different restriction to the same pool of member (physical cubes).

It would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify Yeh's disclosure to include security information in the summary cube (associated metadata) as taught by Pasumansky for the purpose of providing data security by exposing only a subset of the cube to a user (column 2, lines 12-14, Pasumansky). The skilled artisan would have been motivated to improve the invention of Yeh per the above such that there is a flexibility in defining security parameter for a cube (column 2, lines 1-9).

#### ***Related Prior Arts***

The following list of prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- DeKimpe; Daniel Martin et al., US 6542895 B1, "Multi-dimensional restructure performance when adding or removing dimensions and dimensions members"

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- Reddy; Venugopal P. et al., US 6839711 B1, "Configurable space-time performance trade-off in multidimensional data base systems"
- Zait; Mohamed et al., US 6931390 B1, "Method and mechanism for database partitioning"
- Kornelson; Kevin Paul et al., US 7024431 B1, "Data transformation to maintain detailed user information in a data warehouse"

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shew-Fen Lin whose telephone number is 571-272-2672. The examiner can normally be reached on 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Shew-Fen Lin

Patent Examiner

SFL

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November 18, 2006

A handwritten signature in black ink, appearing to read 'Mohammad Ali', written in a cursive style.

MOHAMMAD ALI  
PRIMARY EXAMINER